(FILE 'USPAT' ENTERED AT 09:12:39 ON 21 JUL 1999)

```
               SET HIGHLIGHT OFF
L1        3318 S GLOBAL POSITION### SYSTEM# OR GPS
               SET HIGHLIGHT ON
L2         189 S L1(P)ALMANAC
L3        2920 S MATCH### FILTER###
L4           5 S L3 AND L2
L5        7546 S (PERSON# OR INDIVIDUAL# OR CHILD OR OFFENDER OR BODY OR
INM
L6           1 S L5 AND L4
```

=> d l6 1

1. 5,825,327, Oct. 20, 1998, GPS receivers and garments containing GPS receivers and methods for using these GPS receivers; Norman F. Krasner, 342/357.09; 701/213, 215 [IMAGE AVAILABLE]

=> d l6 1 ab detd(34) detd(58) detd(81)

US PAT NO: 5,825,327 [IMAGE AVAILABLE] L6: 1 of 1

ABSTRACT:

A GPS receiver having multiple GPS antennas. Also described is a method of tracking employing the GPS receiver and a communication transmitter. Also described is a garment having a GPS receiver and a GPS antenna and a communication antenna and a communication transmitter.

DETDESC:

DETD(34)

The presence of 50 baud data superimposed on the GPS signal limits the coherent summation of PN frames beyond a period of 20 msec. That is, at most 20 frames may be coherently added before data sign inversions prevent further processing gain. Additional processing gain may be achieved through **matched filtering** and summation of the magnitudes (or squares of magnitudes) of the frames, as detailed in the following paragraphs.

DETDESC:

DETD(58)

(2) For each satellite, find the pseudorange (to that satellite) from the various groups that has the highest signal-to-noise ratio. The pseudoranges thus found (one per each satellite), become the selected position information. In this method, it is necessary to compensate for the difference in collection times of the data in the different buffers. It is assumed that the internal receiver clock keeps track of the relative times of collection of the buffers. Hence if two buffers were collected at times T.sub.0 and T.sub.1, then the pseudorange corresponding to the second buffer can be compensated for use with those of the first buffer by subtracting T.sub.1 -T.sub.0 +(R.sup.sv (T.sub.1)-R.sup.sv (T.sub.0))/c, where c is the speed of light and R.sup.SV (T) is the approximate range at time T of the satellite in question. The latter quantity can be predicted if the position of the GPS receiver is known (e.g. to 100 mile radius), the approximate time of day is known, and the approximate satellite positions are known

(e.g. via the **Almanac** of the GPS constellation). This compensation also assumes that the local clock is known very accurately, e.g. by subtracting the predicted Doppler (via the **Almanac**) and the measured Doppler associated with the first pseudorange. Alternatively, this quantity may be measured directly from the received signal's Doppler, if the local clock is accurate. The pseudoranges thus found and corrected can be used to compute position by means commonly used in the art.

DETDESC:

DETD(81)

It will be appreciated that this garment may be worn by a person or object in order to **track** the **person** or object. This person may be a soldier, a policeman, a firefighter, emergency response personnel, a child, an Alzheimer patient, an epileptic patient, a person with a medical condition, a field personnel, (e.g., a delivery personnel or a repair service personnel or other field service personnel) or a criminal or individuals under court order. Alternatively, the object being tracked may be a vehicle or a animal or some other movable object (e.g. an asset such as cargo). In a typical implementation in the method of tracking the object, the method includes the steps of receiving at the object a positioning command. In a normal implementation the receipt of this positioning command occurs by a receiver in the unit 310 receiving remotely transmitted GPS positioning commands to the unit 310. Alternatively, unit 310 may generate the positioning command at the object without any transmission of the command from a station remote from the object. This would typically occur in situations where the user or wearer would activate a switch upon the occurrence of a panic condition or a medical emergency. Upon receiving the positioning command, the GPS receiver unit would then receive GPS signals through a first GPS antenna on the object and store digitized samples of these first GPS signals in a digital memory at the object. Then a processor such as a digital processor at the object would process the first digitized samples by performing fast convolutions as described herein. Then, the position information computed by the processor would be transmitted by the communication transmitter at the object from the object to a station remote from the object. The station which is remote from the object is typically a base station such as that shown in FIG. 7 which can display the position of the object relative to a map and thereby allow the unit to be tracked over time by repeatedly receiving position information from object.

=> d 14 1-5

1. 5,841,396, Nov. 24, 1998, GPS receiver utilizing a communication link; Norman F. Krasner, 342/357.02, 357.05; 701/213 [IMAGE AVAILABLE]

2. 5,825,327, Oct. 20, 1998, GPS receivers and garments containing GPS receivers and methods for using these GPS receivers; Norman F. Krasner, 342/357.09; 701/213, 215 [IMAGE AVAILABLE]

3. 5,579,014, Nov. 26, 1996, Parallel correlator for global positioning system receiver; Glen W. Brooksby, et al., 342/357.12; 708/5 [IMAGE AVAILABLE]

4. 5,572,216, Nov. 5, 1996, System for increasing the utility of satellite communication systems; Aaron Weinberg, et al., 342/357.06; 455/12.1, 13.1 [IMAGE AVAILABLE]

5. 5,373,531, Dec. 13, 1994, Signal acquisition and reception method for a global positioning system signal; Kenichiro Kawasaki, 375/200; 342/357.15; 380/34 [IMAGE AVAILABLE]

=> d 14 1 ab

US PAT NO: 5,841,396 [IMAGE AVAILABLE] L4: 1 of 5

ABSTRACT:
A precision carrier frequency signal for calibrating a local oscillator of a GPS receiver which is used to acquire GPS signals. The precision carrier frequency signal is used to calibrate the local oscillator such that the output of the local oscillator, which is used to acquire GPS signals, is modified by a reference signal generated from the precision carrier frequency signal. The GPS receiver locks to this precision carrier frequency signal and generates the reference signal. In another aspect of the invention, satellite **almanac** data is transmitted to a remote GPS receiver unit from a basestation via a communication link. The remote GPS receiver unit uses this satellite **almanac** data to determine approximate Doppler data for satellites in view of the remote GPS receiver unit.

=> d 14 5 ab kwic

US PAT NO: 5,373,531 [IMAGE AVAILABLE] L4: 5 of 5

ABSTRACT:
A signal acquisition method for a GPS receiver which eliminates the necessity of a clock circuit for keeping the current time and also a backup battery for memory is disclosed. According to the signal acquisition method, upon starting of acquisition of a GPS satellite after the power source to the GPS receiver is turned on, using a **matched filter**, an acquisition operation is performed for objects of all of GPS satellites which may possibly be disposed until after a signal of at least one of the GPS satellites is acquired.

ABSTRACT:
A . . . starting of acquisition of a GPS satellite after the power source to the GPS receiver is turned on, using a **matched filter**, an acquisition operation is performed for objects of all of GPS satellites which may possibly be disposed until after a. . .

SUMMARY:

BSUM(7)

The ephemeris component with respect to the transmitting satellite is transmitted in the navigation message, while the **almanac** component providing the general area of location for all available GPS satellites is successively transmitted in units of a frame. Accordingly, if the navigation data is collected for a certain period of time, the **almanac** data for all available satellites will be obtained.

SUMMARY:

BSUM(9)

Since . . . a satellite from the initial operation of the GPS receiver, calculation of the orbits of satellites is performed using the **almanac** component of the satellite, a rough position of the GPS receiver at that particular instant in time is calculated, and. . .

SUMMARY:

BSUM(47)

In . . . starting of acquisition of a GPS satellite after the power source to the GPS receiver is turned on, using a **matched filter**, an acquisition operation for objects of all of GPS satellites which may possibly be disposed until after a signal of. . .

SUMMARY:

BSUM(48)

In . . . is performed for objects of all of the GPS satellites, and consequently, the current position measured upon preceding reception, the **almanac** data of the satellites, and the current time are unnecessary. Consequently, the clock circuit for keeping the current time and. . .

SUMMARY:

BSUM(49)

Accordingly, the receiver can be produced at a reduced cost. Further, since searching for a code phase is performed using a **matched filter**, the time required to acquire a signal of a first satellite after the power source is turned on can be. . .

SUMMARY:

BSUM(50)

According . . . producing an intermediate frequency signal from a signal from a GPS satellite and a code search circuit constituted from a **matched filter** and operable when the power source to the GPS receiver is turned on to start acquisition of a signal of. . .

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     (FILE 'USPAT' ENTERED AT 13:03:10 ON 21 JUL 1999)
L1         29519 S (HANDHELD OR PORTABLE OR REMOT###)(4A)(TRANSMIT#### OR R
ECE
L2          5503 S L1 AND (ANKLE# OR LEG# OR ARM OR WRIST)
L3            77 S L2 AND (GLOBLE POSITION### SYSTEM OR GPS)
L4         15703 S (TRACK### OR MONITOR###)(4A)(BODY OR CHILD OR PERSON# OR
 IN
L5            28 S L4 AND L3
L6            16 S L5 AND (BASE STATIONS OR SITES)
L7             1 S L6 AND MATCH### FILTER###
```

=> d 17

1. 5,825,327, Oct. 20, 1998, **GPS** receivers and garments containing **GPS** receivers and methods for using these **GPS** receivers; Norman F. Krasner, 342/357.09; 701/213, 215 [IMAGE AVAILABLE]

=> d 17 ab detd(72) detd(82)

US PAT NO: 5,825,327 [IMAGE AVAILABLE] L7: 1 of 1

ABSTRACT:
A **GPS** receiver having multiple **GPS** antennas. Also described is a method of tracking employing the **GPS** receiver and a communication transmitter. Also described is a garment having a **GPS** receiver and a **GPS** antenna and a communication antenna and a communication transmitter.

DETDESC:

DETD(72)

While several described embodiments of the base station 17 show the use of a data processing component, such as a computer at the base station in order to compute position information such as a latitude and a longitude for the mobile **GPS** unit, it will be appreciated that each base station 17 may merely relay the information received, such as pseudoranges from a mobile **GPS** unit, to a central location or several central locations which actually perform the computation of latitude and longitude. In this manner the cost and complexity of these relaying **base stations** may be reduced.

DETDESC:

DETD(82)

FIG. 5B shows another garment of the present invention; specifically, it shows pants 320 which may be worn by a person. The pants include **legs** 321 and 322 as well as a zipper 323. They also include a **GPS** receiver and communications system 325 which may be the system shown in FIG. 4 herein. Further details regarding the system shown in FIG. 4, which is a single **GPS** antenna embodiment having shared/common circuitry (shared between the communications system and the **GPS** receiving system) is described in copending application Ser. No. 08/652,833 filed on May 23, 1996, and entitled Combined **GPS** Positioning System and Communications System Utilizing Shared Circuitry, by Norman F. Krasner, which

application is hereby incorporated herein by reference.

=> d l6 1-16

1. 5,917,449, Jun. 29, 1999, Enhanced position calculation; H. Britton Sanderford, et al., 342/457; 701/214 [IMAGE AVAILABLE]

2. 5,883,598, Mar. 16, 1999, Position location system and method; Steen A. Parl, et al., 342/457, 465; 455/456 [IMAGE AVAILABLE]

3. 5,870,426, Feb. 9, 1999, Grouping of spread spectrum acknowledgement pagers to minimize transmission collisions; Hanoch Yokev, et al., 375/202; 340/825.44; 455/31.1 [IMAGE AVAILABLE]

4. 5,870,029, Feb. 9, 1999, Remote mobile monitoring and communication system; James C. Otto, et al., 340/825.36, 573.1, 825.31, 825.49; 379/38 [IMAGE AVAILABLE]

5. 5,853,005, Dec. 29, 1998, Acoustic monitoring system; Michael V. Scanlon, 600/459; 5/83.1; 29/235.5; 381/150, 166; 600/25, 437, 438, 472; 601/2, 46, 47, 55 [IMAGE AVAILABLE]

6. 5,835,017, Nov. 10, 1998, Radio searching system; Tadahiro Ohkura, et al., 340/573.4, 539, 569 [IMAGE AVAILABLE]

7. 5,825,327, Oct. 20, 1998, **GPS** receivers and garments containing **GPS** receivers and methods for using these **GPS** receivers; Norman F. Krasner, 342/357.09; 701/213, 215 [IMAGE AVAILABLE]

8. 5,825,283, Oct. 20, 1998, System for the security and auditing of persons and property; Elie Camhi, 340/438, 439, 988; 701/1, 300 [IMAGE AVAILABLE]

9. 5,717,406, Feb. 10, 1998, Enhanced position calculation; H. Britton Sanderford, et al., 342/457, 363 [IMAGE AVAILABLE]

10. 5,691,974, Nov. 25, 1997, Method and apparatus for using full spectrum transmitted power in a spread spectrum communication system for **tracking individual** recipient phase, time and energy; Ephraim Zehavi, et al., 370/203, 209, 210, 320, 441, 479, 516; 375/208, 326, 375 [IMAGE AVAILABLE]

11. 5,652,570, Jul. 29, 1997, Individual location system; Robert Lepkofker, 340/573.4, 407.1, 539, 574; 342/357.07, 419, 450; 370/313; 379/38; 455/38.4, 88, 400, 521; 600/301; 706/900 [IMAGE AVAILABLE]

12. 5,594,740, Jan. 14, 1997, Wireless communications application specific enabling method and apparatus; Christoph K. LaDue, 455/410; 340/870.02; 455/466, 517 [IMAGE AVAILABLE]

13. 5,546,422, Aug. 13, 1996, Method of transmitting low-power frequency hopped spread spectrum data; Hanoch Yokev, et al., 375/202 [IMAGE AVAILABLE]

14. 5,519,718, May 21, 1996, Remote unit for use with remote pager; Hanoch Yokev, et al., 375/202 [IMAGE AVAILABLE]

15. 5,499,266, Mar. 12, 1996, Low-power frequency-hopped spread spectrum acknowledgement paging system; Hanoch Yokev, et al., 375/202 [IMAGE AVAILABLE]

16. 5,430,759, Jul. 4, 1995, Low-power frequency-hopped spread spectrum reverse paging system; Hanoch Yokev, et al., 375/202 [IMAGE AVAILABLE]

=> d 16 4 ab detd(23) detd(24)

US PAT NO: 5,870,029 [IMAGE AVAILABLE] L6: 4 of 16

ABSTRACT:
A system and method for monitoring the location and/or presence of an object/person within a desired area includes a mobile base station, a central control center, a mobile signaling device carried by the **monitored** object/**person**, and a geolocating means. The mobile base station may be transported to an arbitrary site and retains the **monitored** object/**person** within a desired area. The central control center determines the acceptability of the location of the **monitored** object/**person** and may raise an alarm condition when the **monitored** object/**person** is not within the desired area.

DETDESC:

DETD(23)

With reference now to FIG. 2, an alternative embodiment of the present invention may include a central processing unit 70 which communicates with one or more substations 72 via conventional communications links 74. The substations 72 communicate with one or more mobile **base stations** 78, each of which may be communicating with one or more monitored units 80.

DETDESC:

DETD(24)

As described earlier, the **base stations** 78 communicate with the monitored units 80 to ensure that the monitored units 80 remain within a desired proximity to the base station 78. The mobile **base stations** may determine their own geolocation (such as by a **GPS** locator) and send information regarding their location to the substations 72 or may provide a signal by which an external device or system may determine and report the geolocation of the mobile base 78 to the substation 72. As the mobile **base stations** 78 travel from one location to another, the **base stations** 78 may communicate with different substations 72 so that an entire region, covered by plural substations 72, may be within the permissible travel locations of the **base stations** 78. As the mobile stations travel from the area of one substation 72 to another, the control of and information regarding the mobile **base stations** 78 may be passed from one substation 72 to another, under the control of the central processing unit 70.

=> d 16 5 ab detd(13) detd(14)

US PAT NO: 5,853,005 [IMAGE AVAILABLE] L6: 5 of 16

ABSTRACT:
A transducer in communication with fluid in a pad held in close contact against a sound or movement source monitors acoustic signals transferred into the fluid. The signal pattern is monitored aurally and/or compared to predetermined reference patterns, and optional control and stimulation means can be activated in response to the comparison results. The sensed acoustic signal can be **transmitted** to a **remote receiver** or processed locally. Typically, the acoustic signal is representative of the heartbeat or breathing of a living organism. The monitoring system may be applied to diverse situations including SIDS, apnea, home baby monitoring, medical transport devices, blood pressure cuffs, seats, combat casualty care and hand-held devices.

DETDESC:

DETD(13)

The sensor pad of the acoustic monitoring system according to the present invention can be carried on or built into a body support surface of any type of medical transport device such as, for example, a gurney, an evacuation stretcher, or a wheel chair. In FIG. 4, for example, a sensor pad 12 is configured to be attached across the top or support surface 79 of a gurney 80 using straps or bands 81 that wrap around the support surface. A transmitter, battery, electronic circuitry and other components of the acoustic monitoring system can be attached to the straps or the gurney close to the sensor as shown schematically at 13 in FIG. 4. A stretcher 82 is shown in FIG. 5 with a sensor pad 12 attached across the top or support surface 79 using straps or bands 81; and, in FIG. 6, a wheelchair 88 is shown having a back support 84 and seat 86 with a sensor pad 12 attached across the back support using clips 83. Alternatively, or in addition to providing a sensor pad on the back support, a sensor pad 12 can be attached to the seat 86 as shown by broken lines in FIG. 6. Monitoring components 13 of the system can also include an earphone jack or receptacle 85 to permit medical evaluation simply by inserting a headphone jack or plug (not shown) into the receptacle. The sensor pad can be permanently attached, removably attached or integrally formed with the support surface of the medical transport device to support any portion of the body of a patient or casualty while simultaneously providing vital life function information to care-provider personnel. A sensing pad according to the present invention can also be positioned directly on a hospital operating table or, alternatively, the pad can be made portable and be placed on an injured soldier's torso to immediately and continuously monitor heartbeat and breathing, fluid in the lungs, an obstructed airway, or an irregular heartbeat. In this regard, a sensor pad 12 could be incorporated into a blanket or an attachable pad 90 formed, for example, of a soft rubber tube clamped or glued at opposite ends to form seams 91 and filled with a sound conducting fluid as shown in FIGS. 7 and 8. Adjustable straps 92 or a belt 94 can be attached to pads as shown in order to urge the pads into acoustic transfer contact with the body and electronics attached to the pads, straps or belt can provide processing and output. Individual lengths or segments of tubing can be connected together using inserts or other mechanisms that create a fluid seal with the tubing when adjustable lengths are desired, for example to create a tube-like pad that can be wrapped around the neck, torso, arms, **wrist** or **legs**. Mobile army surgical hospital (MASH) units, field hospitals, and disaster response medical **sites** would obviously benefit from a monitor that could be placed under or against each patient of a full ward, each of whom could be selectively monitored, or have their pad provide an audible alarm when breathing or heart beating stops, for example. The low-cost of such a system makes it ideally suited for naval medical hospital ships, mobile army surgical hospitals, disaster **sites**, or any other location requiring a large number of monitors. Evacuation of injured personnel could use the present invention to monitor vital statistics. Since the device is passive and does not emit any form of energy, unlike ultrasonic, MRI, and X-ray monitoring, it is safe for long term and continuous monitoring for physiological disorders or indications, such as epileptic seizure onset, gastrointestinal diseases, neuromuscular disorders, and muscle spasms, fatigue, or recovery.

DETDESC:

DETD(14)

It will also be appreciated that hospital critical care units and nurseries can use the acoustical monitoring pad in incubators, bassinets, cradles, and cribs with heating pads built into the device for neonatal monitoring. Placing the infants on acoustic monitoring pads could be an

effective way to obtain medical information without the tedious and painful attachment of leads.

=> d l6 5 detd(44)

US PAT NO: 5,853,005 [IMAGE AVAILABLE] L6: 5 of 16

DETDESC:

DETD(44)

Squad or team performance levels could be assessed or those missing in action could be medically interrogated from a remote location. The addition of a temperature probe, **GPS**, time, and personal ID tag (by various frequencies, AM/FM modulation, PCM, or digital technologies) would improve monitoring effectiveness and allow recovery if necessary. Pager tagging methods could select which person was to be interrogated, and alert him to pause for data collection, or respond by transmitter in such a way when pinged, indicating whether medical rescue is necessary, or other medical situations exist which may need attention.

=> d l5 1-28

1. 5,917,449, Jun. 29, 1999, Enhanced position calculation; H. Britton Sanderford, et al., 342/457; 701/214 [IMAGE AVAILABLE]

2. 5,905,461, May 18, 1999, Global positioning satellite tracking device; Timothy J Neher, 701/213 [IMAGE AVAILABLE]

3. 5,901,978, May 11, 1999, Method and apparatus for detecting the presence of a child seat; David S. Breed, et al., 280/735; 180/272; 342/72; 701/45 [IMAGE AVAILABLE]

4. 5,886,635, Mar. 23, 1999, Overboard alarm with localization system interface; Joseph S. Landa, et al., 340/573.6, 539, 984 [IMAGE AVAILABLE]

5. 5,884,224, Mar. 16, 1999, Mobile mounted remote sensing/application apparatus for interacting with selected areas of interest within a field; Gerald J. McNabb, et al., 702/2; 364/528.19 [IMAGE AVAILABLE]

6. 5,883,598, Mar. 16, 1999, Position location system and method; Steen A. Parl, et al., 342/457, 465; 455/456 [IMAGE AVAILABLE]

7. 5,870,426, Feb. 9, 1999, Grouping of spread spectrum acknowledgement pagers to minimize transmission collisions; Hanoch Yokev, et al., 375/202; 340/825.44; 455/31.1 [IMAGE AVAILABLE]

8. 5,870,029, Feb. 9, 1999, Remote mobile monitoring and communication system; James C. Otto, et al., 340/825.36, 573.1, 825.31, 825.49; 379/38 [IMAGE AVAILABLE]

9. 5,853,005, Dec. 29, 1998, Acoustic monitoring system; Michael V. Scanlon, 600/459; 5/83.1; 29/235.5; 381/150, 166; 600/25, 437, 438, 472; 601/2, 46, 47, 55 [IMAGE AVAILABLE]

10. 5,835,017, Nov. 10, 1998, Radio searching system; Tadahiro Ohkura, et al., 340/573.4, 539, 569 [IMAGE AVAILABLE]

11. 5,829,782, Nov. 3, 1998, Vehicle interior identification and monitoring system; David S. Breed, et al., 280/735; 180/272; 342/72; 701/45, 49 [IMAGE AVAILABLE]

12. 5,825,327, Oct. 20, 1998, **GPS** receivers and garments containing

GPS receivers and methods for using these **GPS** receivers; Norman F. Krasner, 342/357.09; 701/213, 215 [IMAGE AVAILABLE]

13. 5,825,283, Oct. 20, 1998, System for the security and auditing of persons and property; Elie Camhi, 340/438, 439, 988; 701/1, 300 [IMAGE AVAILABLE]

14. 5,742,233, Apr. 21, 1998, Personal security and tracking system; Mark S. Hoffman, et al., 340/573.1, 539, 825.49, 825.54; 342/357.07, 457; 379/38 [IMAGE AVAILABLE]

15. 5,731,757, Mar. 24, 1998, Portable tracking apparatus for continuous position determination of criminal offenders and victims; Hoyt M. Layson, Jr., 340/573.1, 539, 691.1, 825.3, 825.49; 342/357.07; 379/38; 701/212 [IMAGE AVAILABLE]

16. 5,717,406, Feb. 10, 1998, Enhanced position calculation; H. Britton Sanderford, et al., 342/457, 363 [IMAGE AVAILABLE]

17. 5,694,335, Dec. 2, 1997, Secure personal applications network; Dennis D. Hollenberg, 713/201; 340/825.06; 395/112; 709/227 [IMAGE AVAILABLE]

18. 5,691,974, Nov. 25, 1997, Method and apparatus for using full spectrum transmitted power in a spread spectrum communication system for **tracking individual** recipient phase, time and energy; Ephraim Zehavi, et al., 370/203, 209, 210, 320, 441, 479, 516; 375/208, 326, 375 [IMAGE AVAILABLE]

19. 5,652,570, Jul. 29, 1997, Individual location system; Robert Lepkofker, 340/573.4, 407.1, 539, 574; 342/357.07, 419, 450; 370/313; 379/38; 455/38.4, 88, 400, 521; 600/301; 706/900 [IMAGE AVAILABLE]

20. 5,650,770, Jul. 22, 1997, Self-locating remote monitoring systems; Dan Schlager, et al., 340/573.1, 539, 540, 574, 990; 342/126, 357.09, 450 [IMAGE AVAILABLE]

21. 5,594,740, Jan. 14, 1997, Wireless communications application specific enabling method and apparatus; Christoph K. LaDue, 455/410; 340/870.02; 455/466, 517 [IMAGE AVAILABLE]

22. 5,546,422, Aug. 13, 1996, Method of transmitting low-power frequency hopped spread spectrum data; Hanoch Yokev, et al., 375/202 [IMAGE AVAILABLE]

23. 5,537,102, Jul. 16, 1996, Apparatus and method for a system capable of remotely validating the identity of individual and their location; Douglas A. Pinnow, 340/825.3, 573.4, 825.34, 825.49; 379/38 [IMAGE AVAILABLE]

24. 5,519,718, May 21, 1996, Remote unit for use with remote pager; Hanoch Yokev, et al., 375/202 [IMAGE AVAILABLE]

25. 5,499,266, Mar. 12, 1996, Low-power frequency-hopped spread spectrum acknowledgement paging system; Hanoch Yokev, et al., 375/202 [IMAGE AVAILABLE]

26. 5,430,759, Jul. 4, 1995, Low-power frequency-hopped spread spectrum reverse paging system; Hanoch Yokev, et al., 375/202 [IMAGE AVAILABLE]

27. 5,429,329, Jul. 4, 1995, Robotic railroad accident prevention vehicle and associated system elements; Charles C. Wallace, et al., 246/166; 73/602; 246/121, 126, 182B, 187C, 473.1; 340/501, 902 [IMAGE AVAILABLE]

28. 5,148,002, Sep. 15, 1992, Multi-functional garment system; David D. Kuo, et al., 219/211, 529, 549 [IMAGE AVAILABLE]

=> d 15 2 ab bsum(10) bsum(15) detd(50)

US PAT NO: 5,905,461 [IMAGE AVAILABLE] L5: 2 of 28

ABSTRACT:
A global positioning and tracking system for locating one of a person and item of property. The global positioning and tracking system comprises at least one tracking device for connection to the one of the person and item of property including a processing device for determining a location of the tracking device and generating a position signal and a transmitter for transmitting said position signal. The position signal is transmitted to a relay station strategically positioned about a desired monitoring area. The relay station includes a device for receiving the positional signal and determining if the received position signal is a valid signal and a device for relaying the position signal upon determining the position signal is valid to a central monitoring station. The central monitoring station receives the validated positional signal from the relay station and analyzes the position signal for monitoring the position of the tracking device. The system may also include a tracking satellite for receiving the validated position signal from the relay station and re-transmitting the position signal to the central monitoring station when the central monitoring station is located outside the transmission range of the relay station.

SUMMARY:

BSUM(10)

A navigation **wrist** wear device comprises a **GPS** receiver fully disposed in a **wrist** watch type housing. A transparent microwave patch antenna is patterned of indium-tin-oxide on sapphire in front of an LCD time, position and velocity display. A bezel provides a protective window. A low-noise amplifier, down conversion, code processing and navigation processing are all provided on a single integrated circuit Photovoltaic solar cells to each side of the LCD help keep a battery charged.

SUMMARY:

BSUM(15)

An additional object of the present invention is to provide a global positioning and tracking system including a transmitter/receiver for attachment around an individuals **wrist** or **ankle** or to an item of personal property.

DETDESC:

DETD(50)

An exemplary embodiment of a tracking unit 18 is illustrated in FIGS. 2-5. FIG. 2 illustrates the tracking unit 18 connected about the **wrist** 32 of a user 20. The tracking unit 18 includes an outer surface 34 having a smooth texture. The tracking unit 18 may also include a face plate 36 which may be engraved with a child's name, a decoration to detract from the purpose of the device providing an ornamental feature to the device or even any other type of identification code. The tracking unit 18 is preferably made of an uncuttable material so that it is difficult or even impossible to remove without the proper unlocking mechanism. Thus, the tracking unit 18 can be used without worry for **tracking** the location of a **child**, a prisoner or inmate out on a

work release program or furlough, senior citizens in need of medical care, personal property or even athletes such as hikers or mountain climbers moving through dangerous areas.